Alabama, 25. Arizona, 1, 2, 8, 15, 18, 19, 20, 23. Arkansas, 2, 14, 16, 17, 18, 19, 20, 21, 25, 31. California, 4, 18. Connecticut, 17, 26. Delaware, 20, 26, Georgia, 5, 14, 25, 26. Idaho, 15. Illinois, 2, 3, 4, 5, 6, 10, 13, 14, 16, 17, 19, 20, 25, 28, 30, 31. Indiana, 1, 2, 3, 4, 5, 13, 17, 19, 20. Iowa, 3, 4, 6, 7. Kansas, 2, 3, 4, 6, 9, 12, 13, 16, 17, 18, 19, 20, 27. Kentucky, 2, 3, 4, 14, 16, 17, 18, 19, 20, 21, 24, 30, 31. Louisiana, 3, 4, 18, 19, 23, 24. Maine, 14, 21. Maryland, 3, 4, 20, 22, 26. Massachusetts, 17, 31. Michigan, 4, 5, 6, 13, 14, 20, 29, 30. Minnesota, 6, 7, 11, 15. Mississippi, 4, 17, 18, 19, 21, 25, 26, 27. Missouri, 2, 3, 4, 5, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 25, 29, 30, 31. Montana, 14, 15, 23, 25. Nebraska, 20, 27, 30. Nevada, 2, 6, 7, 8, 10, 11, 18, 19. New Hampshire, 12, 14, 21. New Jersey, 3, 4, 8, 9, 15, 20, 21, 22, 23, 26, 30, 31. New York, 4, 5, 6, 7, 13, 14, 17, 20, 26, 30. North Carolina, 20, 21, 25, 26, 29, 30, 31. North Dakota, 4, 5, 7, 11, 12, 29, 30. Ohio, 2, 3, 4, 5, 7, 17, 20, 21, 22, 25, 29, 30, 31. Oklahoma, 2. Oregon, 1, 4, 5, 9, 17, 24. Pennsylvania, 3, 4, 5, 17, 19, 20, 21, 26, 31. South Carolina, 25. South Dakota, 4, 5, 10, 12, 13. Tennessee, 2, 4, 5, 14, 15, 17, 18, 19, 20, 21, 25, 26, 31. Texas, 2, 3, 4, 16, 17, 18, 19, 20, 21. Utah, 8, 12, 14. Vermont, 14, 15, 17, 18. Virginia, 2, 19, 20, 25, 26, 27, 28, 29. Washington, 4, 15, 16, 25, 26. West Virginia, 19, 20, 29, 31. Wisconsin, 3, 4, 5, 6, 12, 13, 28.

WIND.

The *prevailing winds* for December, 1897, viz, those that were recorded most frequently, are shown in Table I for the regular Weather Bureau stations.

The *resultant winds*, as deduced from the personal observations made at 8 a. m. and 8 p. m., are given in Table VIII. These latter resultants are also shown graphically on Chart IV, where the small figure attached to each arrow shows the number of hours that this resultant prevailed, on the assumption that each of the morning and evening observations represents one hour's duration of a uniform wind of average velocity. These figures indicate the relative extent to which winds from different directions counterbalanced each other.

Maximum wind velocities are given in Table I, which also gives the altitudes of Weather Bureau anemometers above the ground. Maxima of 50 miles or more per hour were reported during this month as follows (maximum velocities are averages for five minutes; extreme velocities are gusts of shorter duration, and are not given in this table):

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
		Miles				*Miles*	
Amarillo, Tex.	12	56	n.	Fort Canby, Wash.	31	50	e.
Do.	13	54	nw.	Carson City, Nev	6	57	sw.
Do.	15	54	w.	Do.	7	56	w.
Block Island, R.I.	14	54	e.	Cheyenne Wyo	7	50	w.
Buffalo, N. Y	5	60	w.	Chicago, Ill	16	56	sw.
Do.	16	51	w.	Do.	29	56	sw.
Do.	29	53	w.	Cleveland, Ohio	23	56	nw.
Do.	30	53	w.	Do.	24	50	nw.
Fort Canby, Wash.	4	78	se.	Denver, Colo	7	53	w.
Do.	6	86	s.	Do.	30	52	w.
Do.	7	84	s.	Havre, Mont.	26	60	nw.
Do.	8	63	s.	Sioux City, Iowa.	15	51	nw.
Do.	10	54	se.	Do.	16	53	nw.
Do.	13	75	se.	Tatoosh Island, Wash.	6	60	e.
Do.	23	60	s.	Do.	13	54	w.
Do.	24	59	s.	Do.	27	53	s.
Do.	25	60	se.	Do.	30	55	e.
Do.	26	72	s.	Do.	31	63	e.
Do.	27	72	s.	Woods Hole, Mass.	18	54	nw.
Do.	28	60	s.	Do.	24	50	w.

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table IX, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

Thunderstorms.—The dates on which the number of reports of thunderstorms for the whole country were most numerous were: 9th, 27; 10th, 24; 13th, 30.

Reports were most numerous from: Louisiana, 26; Mississippi and Missouri, 15; Oregon, 24.

Thunderstorm days were most numerous in: Alabama, Missouri, and Oregon, 5; Louisiana, 12; Mississippi, 7.

In Canada.—Professor Stupart reports thunderstorms as follows: at Bermuda on the 15th.

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz, from the 4th to the 12th, inclusive. On the remaining twenty-two days of this month 128 reports were received, or an average of about 6 per day. The dates on which the number of reports of auroras for the whole country especially exceeded this average were: 20th, 40; 21st, 27.

Reports were most numerous from: Illinois, 11; Minnesota and Montana, 20; North and South Dakota, respectively, 10.

The number of reports was a large percentage of the number of observers in: Minnesota, 29: Montana, 54; North Dakota, 20; and South Dakota, 23.

In Canada.—Professor Stupart reports auroras on the following dates: Father Point, 20, 21, 28, 29; Winnipeg, 20, 31; Minnedosa, 1, 15, 17, 18, 20, 21, 22, 29; Qu'Appelle, 30, 31; Medicine Hat, 10, 20, 22, 23, 26, 28, 30; Swift Current, 22; Prince Albert, 2; Edmonton, 20; Battleford, 2, 4, 15, 29, 30, 31.

SUNSHINE AND CLOUDINESS.

The quantity of sunshine, and therefore of heat, received by the atmosphere as a whole is very nearly constant from year to year, but the proportion received by the surface of the earth depends upon the absorption by the atmosphere, and varies largely with the distribution of cloudiness. The sunshine is now recorded automatically at 21 regular stations of the Weather Bureau by its photographic, and at 47 by its thermal effects; at one of these stations records are kept by both methods. The photographic record sheets show the apparent solar time, but the thermometric records show seventy-fifth meridian time; for convenience the results are all given in Table X for each hour of local mean time. In order to complete the record of the duration of cloudiness these registers are supplemented by special personal observations of the state of the sky near the sun in the hours after sunrise and before sunset, and the cloudiness for these hours has been added as a correction to the instrumental records, whence there results a complete record of the duration of sunshine from sunrise to sunset.

The average cloudiness of the whole sky is determined by numerous personal observations at all stations during the daytime, and is given in the column "average cloudiness" in Table I; its complement, or percentage of clear sky, is given in the last column of Table X for the stations at which instrumental self-registers are maintained.

COMPARISON OF DURATIONS AND AREAS.

The sunshine registers give the *durations* of effective sunshine whence the durations relative to possible sunshine are derived; the observers' personal estimates give the percentages of *area* of clear sky. These numbers have no necessary relation to each other, since stationary banks of clouds may obscure the sun without covering the sky, but when all clouds have a steady motion past the sun and are uniformly scattered over the sky, the percentages of duration and of area agree closely.